

REMARKS

Claims 9-14 and 23-50 were pending in the above referenced application. Claims 29-50 have been cancelled without prejudice and the election made by the Applicant in the August 14, 2001 telephone conversation with Mark Matkin is hereby affirmed. Therefore it follows that Claims 9-14 and 23-28 remain pending in the instant application.

Rejections under 35 U.S.C. §102

Claims 9 and 11-12 stand rejected under 35 U.S.C. §102(b) as being anticipated by Tsukagoshi et al. (U.S. Patent 5,843,251) (hereinafter "Tsukagoshi"). Applicant traverses.

Claim 9 recites, in pertinent part, "curing the adhesive into an electrically conductive bond electrically interconnecting the first and second components." Claims 11-12 depend from Claim 9 and hence also include the above-recited aspect of Claim 9.

In contrast, Tsukagoshi teaches the use of an **insulating adhesive** between two opposing circuits for joining such circuits (col. 3, lines 31-32). Tsukagoshi forms a layer of the insulating adhesive 5 between electrodes 2 of electronic part 1 and circuits 4 provided on insulating substrate 3 (Fig. 1, and col. 4, lines 38-46). The method disclosed by Tsukagoshi then applies pressure and heat to push the insulating adhesive 5 from between electrodes 2 and circuits 4 so that adhesive 5 is disposed as an insulator between adjacent pairs of contacting electrodes 2 and circuits 4 as well as outward from such pairs to join electronic part 1 to insulating substrate 3

(Figs. 1(b) and 1(c), and col. 4, line 56 - col. 5, line 67). Specifically, at col. 5, lines 56-60, Tsukagoshi teaches that:

In the step (b), the adhesive is reduced in viscosity by heating to facilitate deformation of the projecting electrodes, their contact with the corresponding circuits **and removal of the adhesive**, thus enabling connection with high reliability. (emphasis added)

This portion of Tsukagoshi shows that the reference does not teach or even suggest an adhesive that is cured into an electrically conductive bond, as recited in Claim 9. Rather the reference teaches the exact opposite, in electrical terms, an insulator.

It is well established that a rejection under §102, requires the Examiner to provide a reference that "must teach every aspect of the claimed invention either explicitly or impliedly" (M.P.E.P. 706.02). Here it is shown that Tsukagoshi DOES NOT meet that requirement. It follows then that the instant rejection is incorrect and must be withdrawn. For at least the same reason, the rejection of Claims 11-12 is also incorrect and must be withdrawn. Action to this effect is requested.

Rejections under 35 U.S.C. §103

Tsukagoshi

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Tsukagoshi. Applicant traverses.

Claim 10 depends from Claim 9, therefore Claim 10 includes all aspects of Claim 9. As shown above, in Applicant's response to the rejection under §102, Tsukagoshi DOES NOT teach or even suggest an adhesive that is cured into an electrically conductive bond as is recited in

Claim 9. Applicant respectfully directs the Examiner to M.P.E.P. §2403.03 which states that, citing to *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974), "all the claim limitations must be taught or suggested by the prior art." Therefore, since Tsukagoshi is silent with regard to at least this one aspect of Claim 10, the instant rejection is in error and Applicant need not reach whether or not Tsukagoshi suggests a nickel containing metal surface or whether such a metal surface is conventional. The rejection being shown to be in error, Applicant requests its immediate withdrawal.

Tsukagoshi in view of Miszczyk et al

Claims 13-14 and 23-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tsukagoshi in view of Miszczyk et al, publication from Progress in Organic Coatings 25 (1995) 357-363 (hereinafter "Miszczyk"). Applicant traverses.

Claims 13-14 depend from Claim 9 and thus include the aspect of such claim that "curing the adhesive into an electrically conductive bond electrically interconnecting the first and second components." Claims 24-28 depend from Claim 23 which recites, in pertinent part, "curing the epoxy into an electrically conductive bond electrically interconnecting the first and second components." Thus each of Claims 13-14 and 23-28 include the aspect of curing the epoxy or adhesive into an electrically conductive bond.

As previously shown in Applicant's response to the rejection under §102, Tsukagoshi teaches that the adhesive employed is insulating. Applicant asserts that insulating adhesives CAN NOT be fairly alleged to teach or even suggest electrically conductive bonds.

Turning to Miszczyk, the Examiner alleges that such reference provides "the specified resistances" in Fig. 5. Applicant CAN NOT agree. Claim 23 recites, among other things, "a contact resistance through said metal surface of less than or equal to about 0.3 ohm-cm²." In the referred to Fig. 5, Miszczyk shows a graphical representation of the resistance of an electrolyte in the pores of several coatings (y-axis) vs. immersion time in a 3% salt solution (x-axis). The resistance is represented as log R where the lowest of any value plotted is approximately 4. Where log R is 4, R is at least about 1×10^4 , which Applicant respectfully asserts is NOT a resistance specified the specification of the instant application, yet alone in any of Applicant's claims.

As previously pointed out, to maintain a rejection under §103, "all the claim limitations must be taught or suggested by the prior art." For the instant rejection, Applicant has shown that Miszczyk DOES NOT disclose or suggest the resistances recited in Claim 23 and has again pointed out that Tsukagoshi DOES NOT teach or suggest an electrically conductive bond. Applicant therefore asserts, that it is inconceivable that the Tsukagoshi and Miszczyk taken in ANY combination could make Claims 13-14 and 23-28 obvious. It necessarily follows then that the instant rejection is in error and must be withdrawn, which action is earnestly sought.

Rejections under 35 U.S.C. §103**Tuttle in view of Miszczyk and Product Information Brochure**

Claims 9-14 and 23-28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Tuttle (U.S. Patent 5,558,676) in view of Miszczyk and Product Information Brochure "Information About Dow Corning Z-6040 Silane" (1996) (hereinafter "PIB"). Applicant traverses.

Claim 9 recites, in pertinent part, "providing a curable adhesive composition comprising an epoxy terminated silane" and "curing the adhesive into an electrically conductive bond." The Examiner admits that the cited Tuttle reference is silent with regard to using an adhesive with an epoxy terminated silane. In addition, the Examiner admits that the Miszczyk reference is silent regarding the use of a silane adhesion promoter for connecting electrical components. However, with regard to Miszczyk, Applicant respectfully asserts that this admission falls short of fully representing what one of ordinary skill in the art would obtain from Miszczyk.

Specifically, Miszczyk clearly is directed to the formation or fabrication of glass flake epoxy paints for adhesion to metal surfaces, and is apparently most concerned with such adhesion in fresh water and/or salt water environments. To measure such acquired adhesion, Miszczyk teaches using electrochemical impedance spectroscopy as a laboratory testing method for determining the adhesion achieved. Miszczyk makes absolutely no disclosure or suggestion for utilizing an epoxy terminated silane in a conductive epoxy system, or for that matter, for interconnecting any two

components, whether that interconnection is conductive or not. Thus there is no suggestion whatsoever that an epoxy terminated silane would work in a conductive epoxy system. Rather, Miszczyk only teaches the utilization of a complicated laboratory process for measuring adhesion of a material to a metal surface involving measurements of various parameters including resistance and capacitance of various components, including an electrolyte liquid. In addition, as previously mentioned, where a resistance is provided in Miszczyk, the values of such resistance are many orders of magnitude higher than that which is recited in any of Applicant's claims.

Thus Applicant respectfully asserts that Miszczyk's disclosure of a testing method which involves a resistance measurement to determine adhesion of one material to another, in no way suggests using a specifically disclosed material or class of materials to form an electrically conductive interconnect. Particularly forming such an electrically conductive interconnect in carefully fabricated circuitry components, as the reference only teaches paint adhesion apparently to prevent corrosion of a metal surface. Accordingly, Miszczyk whether taken alone or in combination with Tuttle, does not suggest any of Applicant's Claim 9-14 and 23-28 use of an epoxy terminated silane in a conductive curable adhesive composition for conductively interconnecting a first and a second component. In addition, the PIB also does not suggest a conductive epoxy composition. Rather, the PIB provides that the Z-6040 silane described therein can be used to improve adhesion and increase composite strength. Thus NONE of the PIB, Tuttle or Miszczyk suggest using an epoxy terminated silane in a conductive

epoxy composition. Accordingly, any combination of Tuttle, Mischczyk and the PIB could not be fairly held out as making such a suggestion. It necessarily follows then that the instant rejection is in error and must be withdrawn. Action to this effect is respectfully requested.

In summary, Applicant having responded to each of the rejections, respectfully asserts that Claims 9-14 and 23-28 are in condition for immediate allowance. Action to that effect is earnestly sought. If, however the Examiner's next action is anything other than a Notice of Allowance, the Examiner is requested to call the undersigned to schedule a telephonic interview. The undersigned is available during normal business hours, Pacific Coast Time.

Respectfully submitted,

Dated: Nov. 20, 2001

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 09/480,076
Filing Date January 10, 2000
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Assignee Micron Technology, Inc.
Group Art Unit 1733
Examiner J. Haran
Attorney's Docket No. MI40-274
Title: Method of Conductively Interconnecting Electronic Components,
Battery Powerable Apparatus, Radio Frequency Communication
Device, and Electric Circuit

VERSION WITH MARKINGS TO SHOW CHANGES MADE
ACCOMPANYING RESPONSE TO August 24, 2001 OFFICE ACTION

The claims have been amended as follows. Underlines indicate
insertions and ~~strikeouts~~ indicate deletions.

None.